

DOCKET NO.: 266746US26PCT/brf

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

Hiroshi KANNAN, et al.

SERIAL NO: 10/525,797

GROUP: 1792

EXAMINER: GOLIGHTLY, ERIC W.

FILED: February 25, 2005

FOR: SUBSTRATE PROCESSING UNIT, METHOD OF DETECTING END POINT
OF CLEANING OF SUBSTRATE PROCESSING UNIT, AND METHOD OF
DETECTING END POINT OF SUBSTRATE PROCESSING

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s). No more than five (5) pages are provided.

I am the attorney or agent of record.

Respectfully Submitted,

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IN RE APPLICATION OF :
HIROSHI KANNAN, ET AL. : EXAMINER: GOLIGHTLY, ERIC W.
SERIAL NO: 10/525,797 :
FILED: FEBRUARY 25, 2005 : GROUP ART UNIT: 1792
FOR: SUBSTRATE PROCESSING UNIT, :
METHOD OF DETECTING END POINT
OF CLEANING OF SUBSTRATE
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SUBSTRATE PROCESSING

REMARKS ACCOMPANYING
PRE-APPEAL BRIEF REQUEST FOR REVIEW

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Appellants respectfully request that a Pre-Appeal Brief Conference be initiated in accordance with the pilot program outlined in the Official Gazette Notice of July 12, 2005.

I. FAILURE TO PRESENT A *PRIMA FACIE* CASE OF OBVIOUSNESS

Appellants submit that the Final Office Action of July 22, 2009 (hereinafter “Final Action”) has failed to provide a *prima facie* case of obviousness under 35 U.S.C. § 103 with respect to Claims 1-5, 8-12 and 17-21 of the present application.¹

Independent Claim 1 recites a substrate processing unit that includes a processing vessel, a cleaning gas supply system, an exhauster, an operating state detector, and an end point detector. The exhauster includes rotor blades that exhaust the interior of the processing

¹ See the Final Action at pages 2-5, detailing the rejection of Claims 1-5, 8-12 and 17-21 under 35 U.S.C. § 103(a) as unpatentable over Tsukazaki (U.S. Patent No. 5,837,094) in view of Kubli (U.S. Patent No. 5,636,287).

vessel by rotation of the rotor blades. Claim 1 recites that the operating state detector detects effects of collisions between a gas and a rotor blade so as to determine a change in an amount of or a molecular weight of the gas that passes through the exhauster. Claim 1 further recites the end point detector detects an end point of the cleaning based on a detection result from the operating state detector.

The Final Action fails to make a *prima facie* case of obviousness for at least two reasons: (1) neither of the cited references, either alone or in combination, disclose or suggest an end point detector that detects an end point of the cleaning based on detecting effects of collisions between a gas and a rotor blade so as to determine a change in an amount of or a molecular weight of the gas; and (2) the Examiner has failed to establish a supportable rational basis for replacing the optical system of Tsukazaki with the vibration detection system of Kubli for the purposes of end point detection.

Although the Supreme Court noted that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results,” the Supreme Court made clear with respect to the functional approach that it applied that “[f]ollowing these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement.” *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007). The Court explained, “[o]ften, it will be necessary for a court to look at interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.” *Id.* at 1740-41, 82 USPQ2d at

1396 (emphasis added). In the present application, the Examiner's factual showing and analysis fall well short of the standard set forth in *KSR*.

Tsukazaki relates to a semiconductor manufacturing apparatus that includes an end point detection controller and a particle monitor that includes a laser radiation system.² By contrast, Kubli describes an apparatus for the active cancellation of broad band noise and/or single frequency tones emanating from rotating machinery, such as an air moving device, by detecting related mechanical and acoustic signals therein and causing canceling vibrations to be applied directly to the rotating machinery by a transducer.³ Specifically, Kubli states that “[a]n error sensor 10 detects objectionable noise emanating from rotating machinery,” and that this objectionable noise arises “from unsteady lift fluctuations, and from periodic events in the motion of the machinery.”⁴

Kubli makes no mention whatsoever of detecting effects of collisions between a gas and a rotor blade so as to determine a change in an amount of or a molecular weight of the gas that passes through an exhauster, as recited in Claim 1. Nor does Kubli disclose or suggest an end point detector that detects an end point of a cleaning based on a detection result from the operating state detector that detects effects of collisions between a gas and a rotor blade. Instead, Kubli is solely concerned with noise cancellation, and states that the error sensor 10 “is employed to provide an input error noise signal to control circuit 320” and that the “output from control circuit 320 is a broad band signal, which can include some high amplitude discrete frequency tones, which cause actuator 340 to move actuator shaft 342 whereby broad band noise emanating from rotating machinery is reduced.”⁵

² See Tsukazaki, at column 5, lines 53-64.

³ See Kubli, the abstract.

⁴ See Kubli, at col. 4, lines 8-16.

⁵ See Kubli, at col. 6, lines 22-43.

In short, the description in Tsukazaki relating to end point detection is limited to a particle monitor that utilizes laser irradiation; and Kubli makes no mention whatsoever of (1) detecting effects of collisions between a gas and a rotor blade so as to determine a change in an amount of or a molecular weight of the gas, or (2) detecting an end point of a cleaning. Nevertheless, the Final Action asserts it would be obvious to arrive at the invention recited in Claim 1 because (emphasis added) “It is noted that the operating state detector of the apparatus as per the Tsukazaki/Kubli teachings is fully capable of being used to determine a change in the amount of the gas that passes through the exhauster.”

The Final Action’s focus on what the device in Kubli is capable of is misplaced. In *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990), the Federal Circuit rejected this approach, stating “[w]hile [the prior art] apparatus may be capable of being *modified* to run the way Mills’ apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” *Id.* at 682. (Emphasis in original.) The court further stated that “[i]t is not pertinent whether the prior art device possesses the functional characteristics of the claimed invention if the reference does not describe or suggest its structure.” *Id.* Indeed, in the present case, neither Tsukazaki nor Kubli even go so far as to possess the same functional characteristics of the end point detector recited in Claim 1: detecting an end point of a cleaning based on a detection result from the operating state detector that detects effects of collisions between a gas and a rotor blade so as to determine a change in an amount of or a molecular weight of the gas that passes through an exhauster.

Although differing in scope, independent Claims 8, 20 and 21 recite similar features to those discussed above with respect to independent Claim 1. Accordingly, Claims 8, 20, 21 and the claims depending therefrom are believed to be in condition for allowance for at least the same reasons as those discussed above with respect to independent Claim 1.

II. CONCLUSION

Appellants respectfully submit the U.S. PTO has failed to establish a *prima facie* case of obviousness in view of the clear factual and legal deficiencies outlined above. Accordingly, it is respectfully requested the Final Action dated July 22, 2009 be WITHDRAWN. A Notice of Allowance for Claims 1-5, 8-12 and 17-21 is earnestly solicited.

Respectfully submitted,

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